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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,690

02/15/2007

Hans J. Hug

3024-121

4820

46002 7590 02/01/2011

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EXAMINER

LARKIN, DANIEL SEAN

ART UNIT

PAPER NUMBER

2856

MAIL DATE

DELIVERY MODE

02/01/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,690	Applicant(s) HUG ET AL.	
	Examiner DANIEL S. LARKIN	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-22 is/are allowed.
- 6) ☒ Claim(s) 23-27 and 29 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10 November 2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "attachment comprising material that is the same as the cantilever and the rigid support" as recite in claim 28 and including all of the limitations of base claim 26 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The specification, page 13, lines 17-21, recites that the attachment of the cantilever to the support is executed in the same material (silicon); however, Figure 1 shows a silicon dioxide layer between the silicon cantilever and the silicon support (12). Thus, a silicon adhesive layer between the cantilever and the support is not supported by the drawing figures.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Allowable Subject Matter

The indicated allowability of claims 23-25 is withdrawn in view of the newly discovered reference(s) to JP 11-101810 (Hashizume et al.). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-101810 (Hashizume et al.).

With respect to the limitations of the claim 23, Hashizume et al. disclose a cantilever unit and holder, comprising: a cantilever (71a) having a cantilever tip (10a), the cantilever being mounted to a rigid support (70/80, Figures 6-12), wherein a portion

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of the support has a stepwise recessed flank profile (Figures 7-9) with a width narrowing in a direction towards the cantilever (Figures 6 and 12).

With respect to the limitations of claim 24, Figure 12 of Hashizume et al. appear to show that the narrowing of the support takes the form of an irregular hexagon.

Claim 26 is rejected under 35 U.S.C. 102(b) as being anticipated by US 5,717,132 (Watanabe et al.).

Watanabe et al. disclose a cantilever assembly (Figure 10), comprising: a cantilever (CA1) having a cantilever tip (3P), the cantilever having a back side (top of cantilever) and a front side (bottom side, tip side) opposite the back side and the cantilever being operably mounted to a rigid support (19) on the back side, wherein the cantilever comprises a step-like portion on its front side near where the cantilever is attached to the support, the step-like portion substantially increasing a thickness of the cantilever.

Claim 26 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 9-159680 (Tadashi)).

Tadashi disclose a cantilever holder, comprising: a cantilever (1b) having a cantilever tip (1c), the cantilever having a back side (top of cantilever) and a front side (bottom side, tip side) opposite the back side and the cantilever being operably mounted to a rigid support (40) on the back side, wherein the cantilever comprises a step-like

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portion (1a) on its front side near where the cantilever is attached to the support, the step-like portion substantially increasing a thickness of the cantilever.

With respect to the limitation of claim 29, the reference also appears to show that the cantilever abuts against the support (40) via an attachment location at the back side of the cantilever.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-101810 (Isamu et al.) in view of US 5,245,863 (Kajimura et al.)

Isamu et al. disclose all of the limitations of the base claim including a reflective portion of the back side of the cantilever being used to deflect incoming light to a detector, as shown in Figure 13. Isamu et al. fail to expressly disclose that a film is placed on the cantilever and the film has a sloping boundary.

Kajimura et al. disclose an area (18) of high reflectance material on the back side of the cantilever facing away from a sample. The area (18) also appears to have a boundary sloping towards the support (17). Modifying the cantilever to utilize a reflective film would have been obvious to one of ordinary skill in the art as a means of detecting deflection of the cantilever. Modifying a reflective film to have a sloping

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boundary would have been well within the purview of one of ordinary skill in the art because so as to collect as much light from the laser source rather than having light deflected from the hard edge of a mirror, which could provide for a less accurate measurement.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,717,132 (Watanabe et al.) in view of US 5,245,863 (Kajimura et al.)

Watanabe et al. disclose all of the limitations of the base claim including an embodiment, as discussed with reference to Figures 56 and 57, whereby cantilever flexure is measured using the optical lever method. A piece of aluminum thin film is placed on the back side of the cantilever facing away from the sample. Watanabe et al. fail to expressly disclose that the film has a sloping boundary.

Kajimura et al. disclose an area (18) of high reflectance material on the back side of the cantilever facing away from a sample. The area (18) also appears to have a boundary sloping towards the support (17). Modifying the thin aluminum film to have a sloping boundary would have been well within the purview of one of ordinary skill in the art because so as to collect as much light from the laser source rather than having light deflected from the hard edge of a mirror, which could provide for a less accurate measurement.

Response to Arguments

Applicant's arguments filed 20 January 2011 have been fully considered but they are not persuasive.

With respect to Applicant's argument that Watanabe et al. fail to disclose a rigid support, the examiner respectfully disagrees. The support prior to the hinge 19a is a rigid structure. Applicant's use of the term "comprising" does not expressly exclude use of a hinge after the rigid support or anywhere else within the support. The claim simply recites "the cantilever being mounted to a rigid support on the back side". Given its broadest reasonable interpretation, Watanabe show a cantilever being mounted to a rigid support (20) on the back side of the cantilever. The claim as presented does not preclude teachings having a hinge or any other material located between the cantilever and the rigid support. Applicant appears to what to impart the disclosure of specification into the claims without having to provide claim language to overcome the references. The specification does not provide an express definition of how the term "rigid" is to be defined; thus the examiner is allow to view the claim in the broadest reasonable interpretation, which is simply a cantilever mounted to a rigid support on the back side of the cantilever.

The examiner disagrees with Applicant's interpretation that the examiner has given the term "rigid" a narrow interpretation, considering that the Applicant wants the examiner to read the specification into the broad limitation by stating that the rigid should mean the relationship between the support and the cantilever. The examiner acknowledges that Applicant's interpretation of the claim may be correct as well;

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however, the broadness of the claim does not also preclude the examiner's view of the claim limitation. The claim limitation as written could have any number of mounting relationships that satisfy the claim language and not just Applicant's narrow interpretation based upon the specific disclosure of the specification.

Allowable Subject Matter

Claims 10-22 are allowed.

Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL S. LARKIN whose telephone number is (571)272-2198. The examiner can normally be reached on 8:30 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel S. Larkin/
Primary Examiner, Art Unit 2856